

BEST AVAILABLE COPY

Application No. 10/649,457

Reply to Office Action

AMENDMENTS TO THE SPECIFICATION

Replace paragraph [0004] with:

The pathogenesis of many bacterial infections is dependent on extracellular proteins known as exotoxins. Exotoxins cause pathogenesis by a number of mechanisms, including tissue invasion, cell lysis, effects on neurotransmitter uptake and release, and disruption of cellular homeostasis. With respect to *Bacillus anthracis*, the causative agent of anthrax, pathogenesis is elicited by three exotoxins known as protective antigen (PA), edema factor (EF), and lethal factor (LF). PA is a proteolytically activated heptamer which binds to a specific cellular receptor and facilitates intracellular translocation of EF and/or LF. LF is a metalloprotease which acts on a variety of substrates including mitogen-activated protein kinase. EF induces fluid loss, possibly ~~though~~ through elevation of intracellular cyclic AMP (camp) levels. ~~Bacillus anthracis~~ Bacillus anthracis exotoxins are binary in that two polypeptides are required for toxicity.

Replace paragraph [0030] with:

Whatever type of nucleic acid sequence is used, the nucleic acid sequence preferably encodes an immunogenic portion of one or more exotoxins of *Bacillus anthracis*. By "immunogenic portion" is meant any peptide, polypeptide, or portion thereof, that elicits an immune response (e.g., humoral and/or cell-mediated) against the organism from which it is obtained ~~from~~, derived ~~from~~, or based upon when introduced into a host. A sequence is "obtained" from a source when it is isolated from that source. A sequence is "derived" from a source when it is isolated from a source but modified in any suitable manner (e.g., by deletion, substitution, insertion, or other modification to the sequence) so as not to disrupt the normal function of the source gene. A sequence is "based upon" a source when the sequence is a sequence more than about 70% homologous (preferably more than about 80% homologous, more preferably more than about 90% homologous, and most preferably more than about 95% homologous) to the source but obtained through synthetic procedures (e.g., polynucleotide synthesis, directed evolution, etc.). Determining the degree of homology can be accomplished using any suitable method (e.g., BLASTnr, provided by GenBank).

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Replace paragraph [0071] with:

Because *B. anthracis* is an infectious agent which causes serious, and sometimes lethal, disease as a result of inhalation, all manipulations involving any component of the *B. anthracis* pathogen (e.g., the *B. anthracis* genome, spores, proteins, etc.) must be performed in accordance with Biosafety Level 3 (BSL 3) regulations as set forth by the Centers For Disease Control and Prevention (CDC) (<http://www.cdc.gov/>).

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